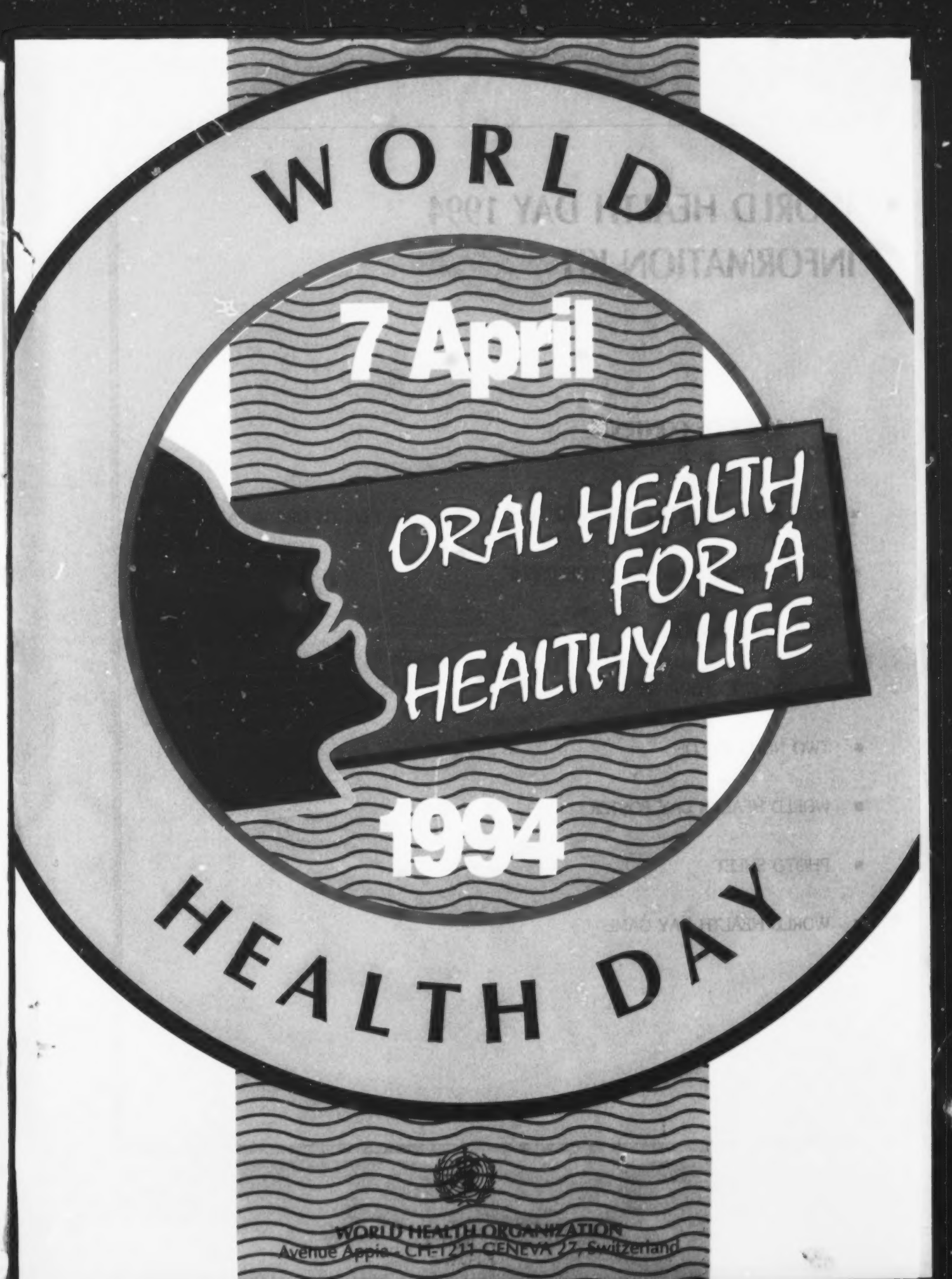
WORLD
7 April
ORAL HEALTH FOR A HEALTHY LIFE
1994
HEALTH DAY
WORLD HEALTH ORGANIZATION
Avenue Appia, CH-1211 GENEVA 27, Switzerland

WORLD HEALTH DAY 1994
INFORMATION KIT

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MESSAGE FROM **DR HIROSHI NAKAJIMA**, DIRECTOR-GENERAL OF WHO, ON THE OCCASION OF WORLD HEALTH DAY 1994

Oral health has made remarkable progress in most developed countries as a result of prevention programmes which stress the optimum use of fluorides, oral hygiene and the adoption of healthy eating habits.

However, the situation is beginning to deteriorate in many developing countries, where oral diseases are on the increase and treatment costs are spiralling. Yet oral diseases are not an inevitable corollary of development. We have the means to prevent this health and economic disaster: we have to ensure that these means are implemented for all citizens everywhere.

Action is urgently needed. In the countries that have achieved sustained improvements, health policies need to be adjusted, staff have to be trained to deal with the new situation and appropriate services set up. In particular, care for the elderly should be strengthened to prevent the oral health problems linked with age. At the same time, prevention among children and adolescents must continue.

In the countries where the situation is deteriorating, this trend must be checked by launching effective prevention campaigns. We must ensure that the adoption of new life-styles and new eating habits does not lead to an increase in dental caries in populations that have always had healthy teeth. We must find ways of incorporating and encouraging traditional methods of oral hygiene which have proved their efficacy, and which are inexpensive and culturally acceptable.

Health, well-being and self-confidence are all boosted by a healthy and well-cared-for mouth, which facilitates communication and human relations.

In devoting World Health Day 1994 to oral health, the World Health Organization is endeavouring to mobilize Member States, the health professions and the general public, so that greater attention is paid to this important aspect of public health. Education and the participation of everyone are the keys to progress in oral health, without which there can be no health for all.

Let us unite our efforts so that the successes already achieved in the field of oral health can benefit everyone.

WHD94.1

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

TOWARDS A BETTER ORAL HEALTH FUTURE

The enormous change in oral health in industrialized countries is one of the major health success stories of this century:

- from a situation where every child had experienced toothache, most adults of 30 had nearly every tooth affected by caries and many had no teeth at all;
- to a situation where whole groups of children are totally free of oral disease, some adults of over 30 have no caries and no fillings, and where people now expect to be able to keep their teeth till the end of their life.

Even the association of dentistry with pain and frequent repair is changing to one where oral care is seen as a preventive service that maintains health and contributes to good looks and quality of life.

In spite of the dramatic change however, there is still need for repair and replacement treatment – a recent report from the United States of America, showed that at age 40, people may have as many as 30 tooth surfaces that have been affected by decay and 40% of people aged over 65 have no teeth at all. Furthermore, underprivileged groups – the handicapped, the poor, ethnic minorities – suffer more oral diseases than the rest of the population ....

How has this come about? What has happened in the industrialized countries?

Community water fluoridation was the first major factor in the dramatic reduction of caries, in those countries which implemented the measure. Other measures such as salt and milk fluoridation have had similar effects. Now, the almost universal use of fluoridated toothpastes throughout life is showing similar good results. It is a fact that oral hygiene is seen as a natural part of total body cleanliness and that people desire a fresh and healthy mouth and good smelling breath.

Adoption of fluoridated toothpastes and regular oral hygiene are part of life-style changes propagated by industry through advertising on television, radio, cinema and in magazines. **In this way the industry has been a very powerful force reinforcing dentists' preventive messages for oral health.**

While prevention has boomed, care techniques have also changed beyond recognition!

Compare your memories of sitting in an upright chair – the dentist standing bent over you – the painful extractions – the vibrating, noisy, slow drill – with:

Lying relaxed in a comfortable patient chair-bed – the dentist seated behind your head – a concerned and effective assistant – the high speed drill – the ultra sonic scaler – modern drug therapy and pain control – diagnosis assisted by effective technology, – almost invisible fillings – more realistic teeth replacements – implants that nearly reproduce the real tooth or teeth. Now computer assisted design of crowns and bridges, and laser surgery techniques are being added to the scene.

We must salute – engineers, researchers, manufacturers, pharmacologists, dentists and their teachers for their ingenuity and dedication in applying skills and knowledge to create this better experience of oral care.

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How do these success stories match with experiences in developing countries?

In these countries we find a more varied picture. Fortunately in many countries oral health is still very good – people don't get many decaying teeth, maybe only 5 or 6 in their whole lifetime; and even in old age they keep their teeth. However in some of these countries oral diseases are increasing; these increases are related to the rapid changes in dietary habits, particularly on migration to large cities. Pain and loss of teeth are much more common. In these communities, in addition to the common oral problems of dental caries and gum diseases, there are other serious oral diseases that threaten people's lives and welfare.

- Oral cancer is one of the most common cancers in the Indian sub-continent. It is also a cancer with a high mortality when undetected at a very early stage.
- Cancrum oris, a destructive type of gangrene, destroys the faces and jaws of thousands of undernourished and ill children and babies in countries where there is famine, mainly in Africa. For most of these children there is no care and no hope.
- The AIDS epidemic has resulted in many patients suffering from oral fungal infections, destructive oral ulcers and untreatable oral cancers; most will not receive even simple palliative care.

Only people who live in major cities can get reasonable treatment for oral problems. Most rural and many poor urban communities have almost no access to even basic emergency care and relief of pain. For too many people dentistry is still "**pain and pay**".

In some countries, the demand for care has increased so much that governments are trying to establish dental schools and in this way provide oral care services to more of the population. However, there are rarely enough teachers or funds to support this type of development; and for almost all communities these resources are needed for solving other problems. Further, traditional dentistry uses equipment that depends on electricity and clean, pressurized water – services not available to most communities in developing countries. So the services that result from such investments do not in fact provide better treatment for the vast majority of the public. **And focusing on providing treatment without a strong preventive programme will never solve the major problems, as has been experienced by industrialized countries.**

However, a total rethink of oral care possibilities is now in progress. Community preventive methods, new techniques of training – new design of equipment – basic sets of instruments – new modern materials – are being combined to bring health – promoting oral care to even the poorest community.

The Role of WHO

WHO's programme is focussing on 6 areas:

1. Ensuring that essential preventive activities are maintained – so that we don't throw away the gains already made thus allowing the world to suffer another dental caries pandemic.
2. Demonstration of the new techniques for basic, health-promoting, economically feasible oral treatment to the public, administrators and oral care personnel.
3. Preparation of learning materials – posters, videos, computer-assisted learning packages, manuals, guides to support these changes.
4. Preparation of well designed technology for the new care – basic materials instruments and drugs.
5. Building a support network to assist communities to care for and repair children maimed by destructive diseases like noma; at the same time leading a campaign, based on improved nutrition and basic child care, to prevent such illnesses.
6. Bringing about a radical change in education of oral health care professionals.

Where should oral health be at the end of the Century?

Governments and communities should have recognized the need to develop and maintain preventive programmes for oral diseases – and communities will take responsibility for these activities.

All communities should be able to afford and manage basic health promoting oral care so that adult teeth will be retained throughout life.

Early care should be available for oral cancer patients everywhere as well as for those suffering from other disfiguring, maiming oral diseases.

Changes in the training of oral health care personnel should ensure that dentists evolve into the role of oral physicians, providing guidance on life-style and hygiene, as part of maintaining health in general and oral health in particular. They should provide special care for the full range of oral problems.

Oral health for life should be getting very close to a reality **for all**.

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

ORAL DISEASES: PREVENTION IS BETTER THAN CURE

Oral diseases such as caries and periodontal disease (infections of the gums and of the tooth support tissues) are among the most widespread diseases in the world. They affect all populations to varying degrees.

Dental caries in the world: a situation of contrasts

The index for measuring the extent to which a population is affected by caries is the mean DMFT, which in a group of individuals counts the average number of teeth that are Decayed, Missing (on account of caries) and Filled. It is a simple, rapid and universally applicable measurement that has been widely used for several decades.

We have drawn up a scale for severity of involvement at various key ages: 12, 35-44, 65 and over.

At age 12 the 5 level scale varies from 0.0 to 6.6 or more: a DMFT between 0.0 and 1.1 is considered very low, a figure of 6.6 or more is very high, while a moderate DMFT is between 2.7 and 4.4 decayed.

Any country undertaking an analysis of its oral health situation can compare the results with WHO's worldwide objective: by the year 2000 no more than three decayed, missing and filled teeth at age 12. By repeating the analysis at regular intervals (WHO recommends an evaluation every five years) it is possible to monitor the trend in caries prevalence, to estimate the needs for care and prevention and to adjust personnel training and services accordingly. It should be pointed out that the simplified oral health survey method developed by WHO is reliable, very inexpensive, can be used anywhere and provides comparable data both in the richest countries and in the poorest.

WHO's Oral Health Unit provides technical support for epidemiological surveys and processes country data free of charge on request.

The information collected is stored in the Global Oral Data Bank (GODB) system in the catalogue of United Nations data banks, whereby it is possible to follow the worldwide trend. Every year since 1969, WHO has compiled a world map of caries at age 12. In 1969 the overall picture showed sharp contrasts: the DMFT was very high, high or at least moderate (between 2.7 and 4.4) in the industrialized countries, whereas it was generally very low, low and occasionally moderate in the developing countries.

Over the next two decades there was a downward movement and sometimes a spectacular fall in the prevalence of caries in virtually all the industrialized countries.

In the developing countries the general trend is for caries prevalence to increase, **except where prevention programmes** have been set up.

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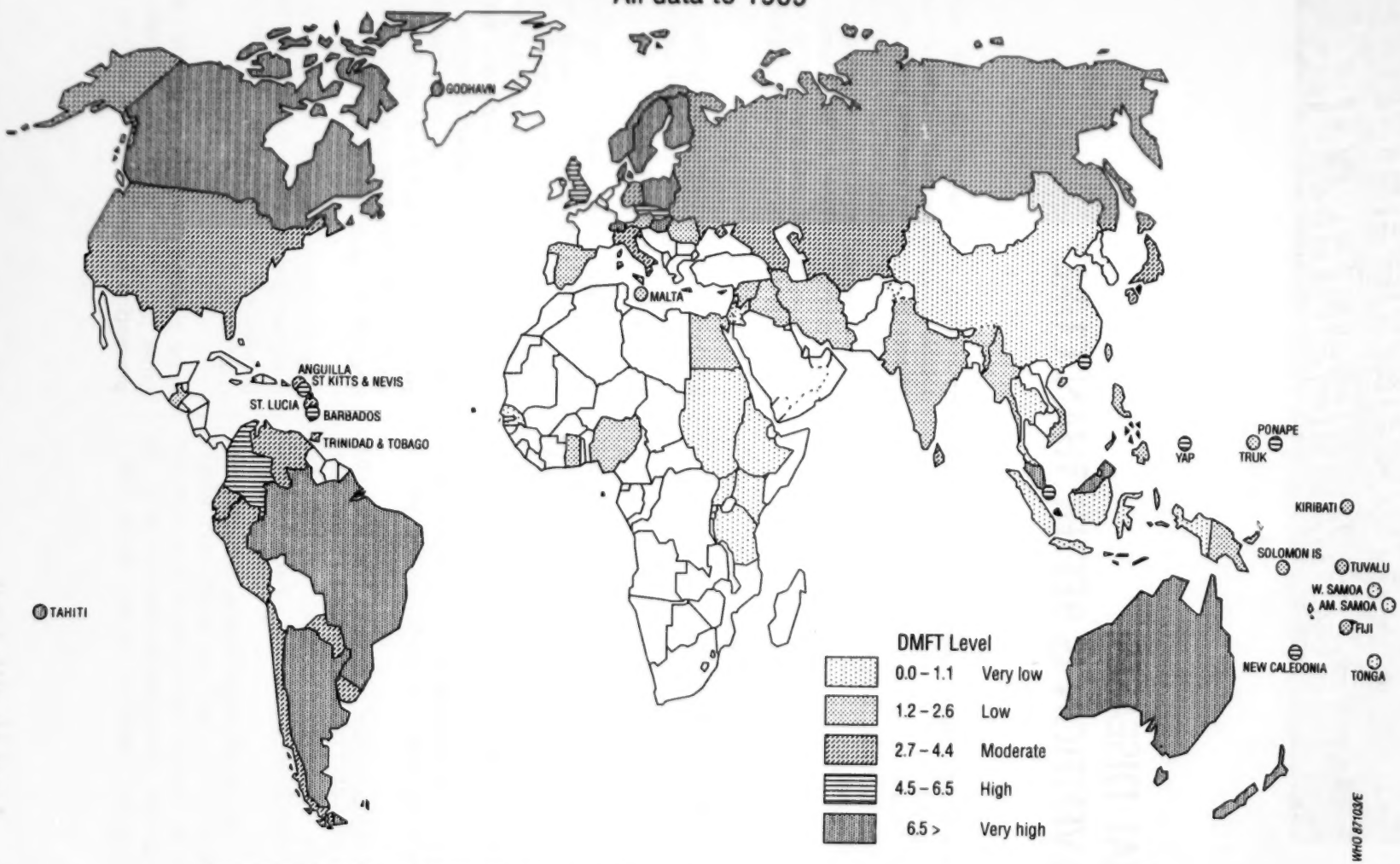
Dental caries prevalence at 12 years

All data to 1969



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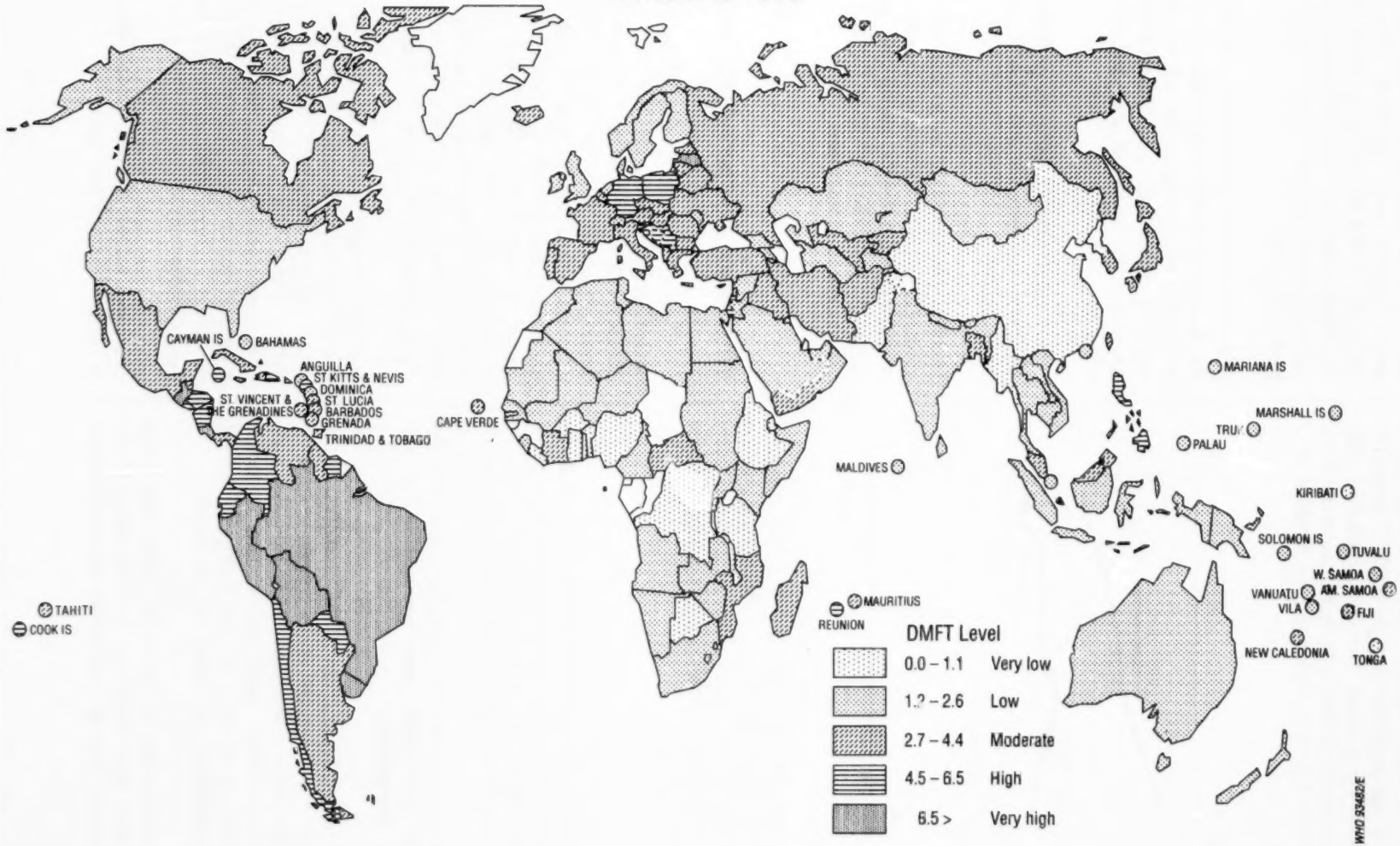
Dental caries prevalence at 12 years

All data to 1993



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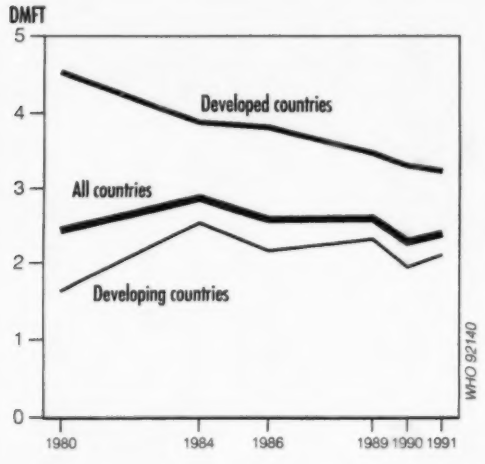
Every year since 1980 the WHO Oral Health Unit has calculated the mean global DMFT at age 12, weighted for population. The resulting graphs display the trends in dental caries in the industrialized countries, in the developing countries and for mankind as a whole.



The trend in the mean since 1980 justifies measured optimism for the next 10 years, although the situation is still delicate in as much as a small increase in very highly populated countries is all that is needed to take the mean above 3.

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What is the explanation for the spectacular drop in caries prevalence in some countries? How can it be prevented from rising again? How can the worsening of the situation in other countries be halted?

The reply to these three questions is **one and the same: prevention, more prevention and still more prevention.**

In the industrialized countries the promotion of oral hygiene, the widespread use of fluoride toothpastes, the introduction of fluoride into drinking-water or salt in some countries, advice on nutrition (no sweets between meals, etc.) are the factors behind an unprecedented public health success story!

Wherever community prevention programmes are set up, caries stop advancing. For example, this has happened in Bulgaria, French Polynesia and Thailand.

Apart from the fluoridation of water, salt and milk, which requires more advanced technology and supervised central administration, all the methods of oral hygiene make use of simple techniques, cost little and are perfectly suited to implementation at primary health care level.

As a result of the progress made in the last 25 years, the developing countries now have the knowledge and means of prevention that will enable them to avoid the problems the industrialized countries have had to face, and indeed still are facing, at a very high price!

In most industrialized countries the oral health services still absorb between 5% and 11% of the national health budget.

There is no reason at all to continue devoting substantial resources to treating a condition that can be prevented by simple, varied and inexpensive measures. But there needs to be the political will to give priority to **prevention.**

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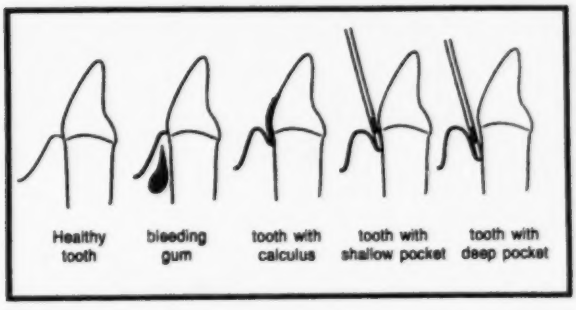
What about the "periodontal diseases"?

Towards the end of the 1960s most dental epidemiologists shared the view that periodontal diseases, unlike caries, were more common in the developing countries than in the industrialized countries. However, the available data were very fragmentary and difficult or impossible to compare since there were no fewer than five different indices in common use. This plethora of methods was compounded by the difficulty of collecting data from adults, a problem that is less serious in the case of caries, where the key age is 12 years.

With the definition of a periodontal index which very quickly achieved wide international acceptance, the epidemiology of periodontal diseases has made great strides. The CPITN (Community Periodontal Index of Treatment Needs) was proposed by a WHO scientific group and recommended in the early 1980s by a joint working group from WHO and the FDI (International Dental Federation).

This index records the periodontal diseases in terms of four clinical signs:

1. Bleeding from the gum
2. Presence of calculus
3. Presence of shallow periodontal pockets
4. Presence of deep periodontal pockets.



A "periodontal pocket" is considered to be present when the gum, under the effect of inflammation and/or infection, retracts, forms a pocket and no longer adheres to the tooth. The ligaments become impaired and the tooth becomes increasingly loose.

To measure periodontal status, the mouth is divided into six parts or sextants. A specially designed probe is used to test the condition (1, 2, 3 or 4) of the gum around the tooth selected as the index tooth for each sextant.

If several clinical signs are present simultaneously, the most severe is selected.

WHO has compiled data on over 100 surveys carried out in the age group 35-44 years. These data should be treated with caution, since very few of them provide a national estimate. Nevertheless, they are of great interest because they consistently show a similar pattern of frequency and severity of involvement, which challenges some generally accepted ideas about the distribution and the etiological process of periodontal disease.

The data show that the percentage of people who have deep pockets and the mean number of sextants per person also displaying deep pockets are low to very low. This means that the severe forms of periodontal disease, those requiring complicated surgery, are far from common.

Moreover, there seems to be no difference in frequency between industrialized countries and developing countries for the severe forms of periodontal disease.

On the other hand, the initial forms (bleeding and calculus) are much more prevalent in the developing countries.

In the light of these data it may be stated that generalized periodontal destruction is rare in 40-year-old adults. Some people show some signs of such destruction, but only a limited part of their dentition is affected. It seems that the initial forms (bleeding and calculus) do not necessarily lead on to the advanced stages of the disease, except in certain minority groups.

How can these diseases be prevented?

After a few days of careful cleaning of the teeth, the bleeding stops in the vast majority of cases and the inflammation, the cause of much discomfort, also regresses.

There are various possible prevention policies: hygiene for the most common and least serious forms; development of products that act against the destructive types of periodontitis. A whole field of research to protect the risk groups is opening up.

Points to remember

No population is free from oral diseases such as caries and periodontal diseases, which are among the world's most widespread.

The methods and techniques of prevention are widely known: hygiene, optimal use of fluorides, nutritional advice. Wherever these methods are practised, success is guaranteed.

Whether caries or periodontal disease is the problem, regular brushing or other cleaning of the teeth is the first requirement for good oral health.

WHD94.3

WORLD HEALTH DAY
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ORAL HEALTH FOR A HEALTHY LIFE

ORAL HEALTH FOR ALL THROUGH ALTERNATIVE ORAL HEALTH CARE SYSTEMS

The prevention and control of dental caries **in industrialized countries** have been due mainly to use of fluorides in many different ways and to the widespread adoption of effective oral hygiene habits.

In spite of these successes the disease is not conquered in all communities. It might still be called a neglected epidemic in under-privileged and low-income groups.

There are many high risk populations in the USA:

- 97% of the homeless need oral care, black children have 65% more untreated decay than the average citizen, low income 91% and American Native: 265% .
- more than 50% of the housebound elderly have not seen a dentist for 10 years.

Traditional systems for oral care are based on various combinations of public salaried services and private practice. The public services are usually responsible for prevention, care of school children and disadvantaged groups; and private practitioners provide a wide range of treatment to the general public. All these systems are oriented in such a way that the dentist provides most of the care.

In the USA :

- 84% of 17 year olds have had tooth decay and an average of 11 tooth surfaces are damaged.
- people aged 40 to 44 have an average of 30 tooth surfaces affected by decay.
- 41% of people aged 65 or over have no teeth at all.

In **developing countries**, the level of dental caries was rarely as high as in industrialized countries and, in some, successful preventive activities have been implemented. However, in many there is still the threat of increasing caries related to changing diet and lifestyles.

Common oral diseases in developing countries

The burden of demand for treatment only of severe caries or periodontal disease can be "gestimated". In about one third of these populations, about 1350 million people will require pain relief treatment (extractions) 3 times in their lives. About two-thirds or 2400 million people will need 5 or more extractions.

However, in many communities these systems do not meet even the basic needs of the public. Most public services have only very low coverage; communities in low-income rural and urban areas cannot afford private oral care. Further, developing countries cannot afford to establish, staff and run education facilities for dentists; or hope to provide adequate employment opportunities for dentists trained abroad.

In **all** countries economic restraints, changes in demand for oral health care, political pressures to extend services to under-privileged groups, concern about quality, costs and effectiveness of care demand that alternative ways of organizing oral health and care are examined and implemented.

Cost and lack of access for under-privileged and low-income groups constrain all oral health care systems.

What actions can be taken to combat this neglect, break down the barriers of cost and improve access to oral health and care ? Alternative oral care systems need to be developed so that a maximum number of

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people can have access to and can afford oral health and care.

Several recent advances give great scope for the transformation of the delivery and quality of oral care.

These are:

- new educational technologies that make learning – both knowledge and skills – simpler and faster for all types of personnel;
- simplified and logical design of oral clinics that improve the workplace and substantially reduce capital costs of equipment and need for maintenance;
- better materials that are easier and simpler to use.

Using these technological advances 3 types of care can be defined:

- rather simple, very cost effective,
- moderate level technology that is rather expensive, and
- high technology, often extremely expensive.

A rational, health promoting and affordable mix of care must be planned and implemented in all countries.

> First level care includes:
> prophylaxis, removal of calculus, application of sealants, restoration of single surface caries cavities

As a consequence of improving oral health in most ***industrialized countries*** the need for moderately complex care is decreasing. With further emphasis on prevention, need and demand for first level interventions will increase slightly; while the need for high technology care will probably increase for several decades due to the desire to preserve natural teeth and the increasing numbers of elderly people, who have some natural teeth.

First level, mainly non-interventive care will continue to be the major need in most ***developing countries***. This type of care can now be provided by specially trained health centre personnel, rather than by the traditional dentist or auxiliary worker.

In those ***developing countries*** where caries is increasing, a rising demand for moderate technology care will continue over the next few decades.

A rather small need for high technology care – mainly related to repair of trauma and reconstruction after severe pathology – will remain and will eventually increase.

> Moderately complex care includes multiple surface restorations, removal prostheses and extractions.

> Complex oral care includes precision prosthetics, implants orthodontics, complex surgery and oral medicine.

> In all countries prevention and control care can minimize the need for intervention.

> In any society, high technology can only be afforded in limited amounts. It must be of good quality and appropriate.

Alternative systems in industrialized countries

Increasing access to basic oral care

First level, mainly non-invasive interventions have been prepared and are being tested as part of the work of community health clinics for minority groups and low-income inner city and rural communities. The elderly and groups with special needs would also benefit from out-reach activities from such clinics which would provide health education and promotion coordinated with health-check programmes by multi-disciplinary personnel. As effective, simple and acceptable care reduces the referral needs for the moderate and high technology type of care, oral care costs could be reduced by this approach to a level that can be sustained by most communities.

Some locations are experimenting with different relationships between oral care professionals, e.g. hygienists working independently in offices, in patient's homes and in institutions. Greater access is the main aim of such outreach activities.

Financing oral care

Some of the different approaches being used to finance oral care are quality control guidelines, fixed fee agreements, capitation schemes, health

maintenance organizations, and rewarding increased preventive care.

Using information about the duration of acceptable care procedures, **quality control guidelines** are being prepared that indicate the average number of years each type of care should last. If a care procedure does not last the specified time, the clinician is then obliged to give re-treatment free of charge. Such guidelines are aimed at reducing unnecessary treatment which causes progressive destruction of tooth substance and higher costs of oral care.

In some countries, for most procedures, dentists can only charge ***fixed fees*** that are agreed between the health authorities and the professionals. They can only exceed those fees for special treatment and after a review of the diagnosis and proposed procedure. In countries using this system costs of oral care are not rising and in some they are decreasing.

Capitation schemes pay the dentist a fixed sum for each person enroled as a patient in their dental clinic. For this fixed annual fee a dentist contracts to maintain the oral health of all the enrolled patients. However, patients must undertake to attend for check-ups on a regular basis, or they lose their rights and have to pay for the treatment they need to restore their oral health. It seems likely that costs will be reduced by this type of programme.

Health maintenance organizations (HMO) contract with a group of oral care professionals to provide care to a group of communities or individuals, at agreed fees. HMOs are usually organized and managed by companies that specialize in health insurance. This has proved an effective way to limit the costs of providing comprehensive oral care.

In one country a project to ***encourage preventive care*** gives dental care managers a financial reward if disease levels do not increase in the patients in their catchment area.

Alternative approaches in developing countries

Whereas the various systems being tried in industrialized countries can be of universal relevance, the developing countries have special problems in actually providing care.

Although most care needed is of the first level, minimally invasive type – dentists usually provide all types of care. The most common moderate level care given is extraction and frequently dentists resist the training and use of other types of personnel for this and even less invasive tasks. There are also situations where teeth with rather minor caries problems are extracted because that is the only treatment available, due to lack of supply of filling materials. In rural areas it is clear that, because of lack of oral care personnel of **any** type, most carious or infected teeth are not treated in time. Rather the disease progresses, causing intermittent pain that is endured by the sufferer and managed by avoiding use of the affected area of the mouth. Only when extreme pain or severe infection develops is an attempt made to find treatment. This is often provided by a general health worker or a traditional healer in private practice. This treatment may be extremely costly when counted in terms of loss of earnings, production lost, travel costs and fees that may be as high as those charged by dentists. Delaying treatment until there is severe infection causes a high rate of debilitating and even life threatening conditions in such communities.

The approach that seems likely to provide an effective alternative solution is called Atraumatic Restorative Technique (ART) combined with community participation in local oral care organization. ART has the potential to revolutionize the type of care that can be given in the community. It is based on using dental hand instruments and glass ionomer, a rather recently developed dental filling material. The technique does not need electricity or clean piped water as do traditional dental drills and equipment. As glass ionomer sticks very well to tooth tissues, the carious teeth do not need to be cut and shaped with a dental drill as is needed when amalgam is used. This means that small caries cavities can be treated using hand instruments to scrape out and remove the diseased parts of teeth, and then cavities can be filled with glass ionomer which is also capable of having a preventive effect.

For this approach to be successful, it needs to be part of a community organization that provides both prevention and disease control care. Members of the community need to feel responsible for the good functioning and success of the service. Otherwise, people will continue to demand care only when they have pain and by that time the caries lesions will be too large to be adequately treated with this technique.

The aim is to avoid having to use more traditional types of care which are invasive and too costly.

Community participation

Alternative oral care systems based on collaboration with and participation of members of the community have the potential to change the way oral health and care services function. The community can participate through:

- involving people in prevention and promoting "self care". When people realize that toothache is not an inevitable part of life, the responsibility for active reduction of the need for moderate level interventive treatment acts as a catalyst for change;
- organizing regular community campaigns to examine people's mouths to identify early lesions while still small enough to treat with ART;
- participating in decision making about needs and priorities for oral care;
- training members of the community to provide low level care;
- use of locally constructed equipment;
- devising and managing the financing arrangements for oral care.

Associated with this and other approaches are training systems which focus on optimal ergonometric principles. A set of manuals for learning these procedures and a set of well designed, low cost equipment for both learning and care are available from WHO and UNICEF.

It is important to realize that the use of approaches such as ART and the new type of equipment and training technology is not being promoted only for developing countries. The ART methodology has potential for quality care at any level of development or society. The ergonometric approach to deliver services no matter which system is used was pioneered in Japan based on performance logic. It has now been used and adapted over many years in several dental schools, notably in San Francisco and Maryland, USA, Otago, New Zealand and Vancouver, Canada.

There really is a great potential to extend health promoting oral care to larger numbers of under-served communities around the world.

WHD94.4

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

AN ORAL HEALTH CARE SYSTEM ADAPTED TO NEEDS? A PERMANENT CHALLENGE

Public health leaders in all countries are confronting the same puzzle: how to design, set up, regularly evaluate and readjust services that cover the needs and meet demand. To add to the complexity of the task, all decisions are subject to budgetary constraints that often pay very little attention to genuine public health considerations.

In the oral health field there is a set of methods enabling each country to analyse the needs, the demand and the response of the oral health system. These methods have been developed over the last 20 years in the course of international collaborative studies on oral health care systems known as ICS.

A powerful tool for analysis

The study is performed on a random population sample of each key age group for oral diseases: 12 years, 35-44 years, 65 and over. The oral health status of each individual is subjected to clinical examination, and the findings are used to calculate the current health status and treatment needs. Moreover, a questionnaire completed by the subjects provides information on attitudes, behaviour, level of satisfaction and other factors relating to demand and consumption of care.

The study is supplemented by a survey on a sample of the personnel concerned: dentists, dental auxiliaries, dental assistants, heads of school health services, etc.

In addition to these data on the consumers and providers of care, the study provides structural, macro-economic and sociological data.

On completion of an ICS, a full description of the health system of the sector is available, together with an estimate of the levels of disease and the treatment needs. It is thus possible to analyse the weaknesses and strengths of the system and the way in which these are perceived by the population. All these data have to be taken into account whenever it is intended, for example, to introduce a new charging system, promote hygiene and prevention programmes, or rethink personnel training programmes.

If repeated periodically, the exercise makes it possible to follow the pathological trends, to estimate the growth of demand and treatment coverage, and thus to make the necessary adjustments and plan personnel production for the coming decades.

Oral diseases differ from one country to another, but only in terms of prevalence or severity, not in kind. The principles of prevention are likewise universal: hygiene, controlled use of fluorides, low-sugar diet. Types of treatment comply, theoretically, with the principle that identical problems require an identical response. Despite these similarities, oral health care systems differ very widely from one country to another. It is useful therefore to compare the various systems and to see what aspects, structures or approaches seem to provide the best response to a given situation.

A unique store of knowledge

From 1973 to 1981, ICS-I was conducted in ten countries representative of a wide range of systems from wholly private to wholly public, with a series of intermediate stages – some with school health services,

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some without – all funded in very different ways. The participating countries were Australia, Canada (Alberta, Ontario, and Quebec), The Federal Republic of Germany, The German Democratic Republic, Ireland, Japan, New Zealand, Norway, Poland and the United States of America.

Six of these countries took part in ICS-II (1988-1993), which permitted a comparison of their situation after about ten years. They are Germany (Erfurt site), Japan, New Zealand, Poland and the United States of America (Baltimore site). They were joined by France and two new sites in the United States of America.

The ICS surveys have made it possible to build up a unique data base on oral health systems around the world.

This source of information can be a useful aid to planners wishing to evaluate their system or to replan it but who lack the necessary resources to carry out an ICS-type study in their own country.

The international collaborative studies have had a considerable impact. Some countries have literally discovered their own oral health situation, and some systems have been entirely restructured or redirected as a result. ICS-II enabled these countries to measure the progress made (to give just one example, 36% of 40-year-old adults in New Zealand were completely toothless at the time of ICS-I, but 15 years later the figure was only 16%).

A healthy questioning of beliefs

As regards the intercountry comparison, the least that can be said is that the ICS overturns some generally accepted ideas:

- oral health status does not seem to depend on the type of personnel or on access to care;
- care provided in the school setting is very effective in the treatment of childhood diseases but does not appear to improve the oral health of adults in the long term, except when backed up by the simultaneous teaching of prevention techniques;
- the most decisive factors for oral health are linked to the capability of oral health personnel and governments to promote prevention activities.

In other words, facilitating access to care and increasing the number of dentists are not necessarily the best responses in the oral health field. In planning terms, priority should always be given to prevention, whatever the level of resources available, and each situation should be analysed in its own right and in comparison with others.

WHD94.5

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

DISEASES OF THE SOFT TISSUES OF THE MOUTH

When most people think of dentistry they think of toothache, and losing their teeth because of dental caries and gum problems. But other parts of the mouth also get diseases. Some of these diseases – like oral cancer – kill; others are related to illnesses in the rest of the body. People with AIDS, tuberculosis, syphilis, leprosy and herpes commonly have oral problems and conditions that may be very severe. All of these diseases in the mouth cause much misery. They are often extremely painful and make eating and speaking difficult.

Oral cancer

Oral cancer is a life threatening problem in all countries. Most oral cancer is related to oral habits, especially the several uses of tobacco which are ***all*** dangerous. Tobacco may be:

- chewed in a quid containing several other ingredients such as areca nuts and betel leaves, slaked lime and aromatic flavourings;
- smoked as a cigarette, cigar, bidi;
- sucked as a smokeless tobacco sachet;
- reverse-smoked (the lighted end of a cigarette is placed in the mouth);
- sniffed; or
- dipped (a small quantity of very fine cut tobacco is placed in the mouth between the cheek and the teeth).

Information about oral cancer for some populations is available from a variety of studies, and is usually presented as prevalence and incidence figures. Prevalence is the number of people who have oral cancer per 100,000 people. Incidence gives the number of new oral cancer lesions each year per 100,000 people. Frequency, in percentages, of all the different types of cancer that are found in the mouth is also reported.

The problem of cancer is rather different in developing and industrialized countries. But for all countries, we need to remember that cancers due to oral habits may take 20 years to develop. Because of this time lag, even if all undesirable habits were halted tomorrow, there would still be a large number of habit (especially tobacco) related cancers over the next 20 years.

Oral cancer in Developing countries

The countries where oral cancer is most common are in the Indian sub-continent – India, Pakistan, Afghanistan, Sri Lanka – and some countries in south-east Asia – Myanmar, Thailand, Indonesia, Papua New Guinea and the Philippines.

Oral cancers are the 6th most frequent cancers in the world but in developing countries they rank 3rd for males and 4th for females; 2,5 times as many as industrialized countries for males and 4 times for females.

Oral cancer in Industrialized countries

The prevalence of oral cancer in most western European countries is generally low – although a few communities, for example in France, have high levels. As preventive programmes to reduce tobacco smoking begin to take effect, other forms of tobacco such as "smokeless tobacco chews" are being actively

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promoted. These products are being targeted particularly at young people. This chewing habit has the potential to produce the same types of oral cancers that are common in the countries of the Indian sub-continent.

Treatment of Oral cancer

People affected by oral cancer are often so disfigured that they never go to a health centre or are seen by health workers. This is particularly true in developing countries. Thus, they remain without treatment. When they do try to get care it is usually because they have difficulty eating or because of extreme pain, as the cancer has invaded the surrounding tissues. At this stage the disease is so advanced that no curative treatment is possible. Often, these patients are sent to a regional or national teaching hospital. In many cases, they find themselves unable to communicate because of a different language, disoriented by a strange environment, far from family members' support and without adequate pain control and palliative care.

In areas where hospitals and oral care services are few, even when a health worker does identify an early oral cancer lesion, there is often no trained personnel or the right kind of equipment for giving the treatment needed.

Submucous fibrosis

In Indians and some other Asian groups sub-mucous fibrosis is a lesion that causes the cheeks and other soft tissues to become thick and rigid. About 1 % of the population in South India has this condition. As it gets worse the patient has difficulty opening his or her mouth and thus in cleaning the mouth. This leads to further infections that are very difficult to treat because of the mouth opening constraints. In addition to these problems, sufferers have a high risk of developing oral cancer. The habits of reverse smoking, frequent consumption of very spicy foods, use of betel quid and nutrition deficiencies have been strongly associated with this condition.

How to improve the situation ?

The problem is both tragic and preventable, but there is an enormous potential for prevention.

A strong emphasis on prevention and early detection is needed. To promote oral and general health and to cope with treatment of the diseases and problems caused by tobacco use.

Oral cancers are special in that members of the community can take some responsibility – self examination of the mouth – for recognizing possible problems early.

Prevention in Developing countries

The main elements are:

- training local health centre workers to examine people's mouths to check for early lesions and to refer, appropriately, for diagnosis and treatment;
- demonstrating to people the direct effects of tobacco use, describing the benefits of stopping and explaining how to reduce the danger, e.g. by rinsing after chewing or not sleeping with the tobacco quid in the mouth;
- involving teachers in health education messages for children so that they don't start to use tobacco;

If you use tobacco and have any of these signs, go to see a health worker:

■ a burning sensation ■ a prickly or numb area ■ a white, grey or red patch ■ a sore that does not heal after 2 weeks	IN YOUR MOUTH
■ enlarged and tender glands	UNDER YOUR EARS

- training medical and dental staff in management and care of early lesions;
- establishing public policies and legislation to promote smoke-free public environments.

Other actions, complementary to prevention, are needed to improve care of patients:

- The development and evaluation of effective treatment techniques for early lesions in hospitals where there are no radiotherapy facilities, the

aim being to prolong the lives of people who would otherwise die as a result of oral cancer.

- Training medical and oral care staff in palliative care for terminally ill patients using the "WHO 3 step ladder approach", i.e. ***"the right drug at the correct dose at the right time"***: using (i) non-opioids (aspirin and paracetamol), (ii) mild opioids (codeine) and (iii) strong opioids (morphine) or a combination of the 3 types of drug if needed, until the patient is free of pain.
- Making sure that oral morphine is available for pain control: it is the cheap and effective pain killer best suited for all palliative care programmes.

Prevention in Industrialized countries

Prevention and control of tobacco use through health education are being pursued vigorously in many industrialized countries. The activities range from health education for school children and workers, individual counselling by general medical practitioners and dentists, and courses to enable people to quit smoking.

Increasingly, these activities are being reinfored by legislation to ensure that all public areas – schools, hospitals, work and entertainment places, transport facilities – are smoke-free. Several governments have banned the import, manufacture and sale of smokeless tobacco chews. In other countries, warnings about the dangers of cigarettes and smokeless tobacco are required on the packaging.

The other effective measure used is increased tax on tobacco products. This seems to have a considerable effect on reducing tobacco use by young people. The combination of education, smoke free environment action and legislation is clearly making inroads on the tobacco habit in many highly industrialized countries.

AIDS and oral problems

The AIDS epidemic also contributes its share of oral problems. The most common are oral lesions that are precancerous, rapidly progressing cancers and debilitating and painful fungal infections of the mouth. All of these are difficult to treat in the HIV infected patient.

Many of the oral effects of AIDS can be seen in the mouth before the patient has obvious signs of seropositivity. So training health and particularly oral health personnel to recognize the problems is important for patients because:

- although patients with certain types of oral lesions may not be recognized as being seropositive – they are infectious during this time. They need to know if they are infected so that they can protect those around them;
- although there is no cure for HIV infection, some treatments can help to keep the patient from developing full blown AIDS. So it is vital that treatment starts as early as possible;
- oral health personnel can provide treatment of oral infections that controls both the severity of the infection and pain.

It is also important for the members of the oral health care team to be informed about HIV infection, and about effective treatment procedures and correct hygiene and infection control measures in the clinic.

- Dentists have an obligation to provide safe treatment for all patients, including those that are HIV-positive. Consumer groups should be aware that dentists have an obligation not to refuse treatment solely because of a patient's HIV status.
- They need to ensure that information about the HIV status of patients is kept confidential; and not test patients for HIV without their consent.
- They need to understand and communicate to patients that the recommended precautions protect the patient and all oral health care personnel.
- Dentists have a responsibility to make sure that all personnel are appropriately trained and understand the risks to their own health.

WHD94.6

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

NOMA, A LITTLE-KNOWN PUBLIC HEALTH PROBLEM

HUNDREDS OF THOUSANDS
OF CHILDREN DIE EACH YEAR

THOUSANDS OF SURVIVORS ARE HANDICAPPED
AND DISFIGURED FOR LIFE

THE UNHEEDED DEATHS AND UNTOLD SUFFERING CAUSED
BY NOMA ARE MOSTLY AVOIDABLE

From the past ...

In the history of human diseases, noma dates back to ancient times. It is sometimes referred to as "gangrenous stomatitis" or "cancrum oris". The name most frequently used, "noma", is derived from the Greek "nomen" which means "to devour". This name is believed to have been proposed in 1762 by Lund, the first to give a detailed clinical description of the disease. According to the researches of Grappin and Le Coustou (1), however, the disease was known to Hippocrates, Galen, Celsus and Aretaeus of Cappadocia.

In Europe, it is referred to in writings of the 18th century and throughout the 19th century in France and Britain. Cases of noma in the United States of America were reported in 1826 and 1848.

In the 20th century, noma has disappeared completely from the developed countries, with the noteworthy exception of the many cases reported in Nazi concentration camps (2), especially in Auschwitz and Belsen.

These facts, brought to light by a retrospective study of the etiology and epidemiology of noma, show that it should not be regarded as a "tropical" or "African" disease, as is still all too often the case. It can strike at any community without distinction of race or climate, wherever extreme poverty and malnutrition are present.

... to the reality of today

Noma today is yet another tragedy of poverty and underdevelopment.

The map WHO has compiled of "noma in the world today" is still very incomplete. It shows that most of the countries reporting cases are in Africa, but Asia and Latin America are by no means exempt.

This map, drawn up on the basis of bibliographical studies and reports by local correspondents, can be used to draw up a definitive list of the countries where noma is present **today**. On the other hand, it gives

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no quantitative indication in terms of either prevalence or incidence. Alarming reports have in fact been received from various African countries that noma may be on the increase.

Since no epidemiological study of noma has been conducted, it is difficult to obtain a realistic picture of the extent of the problem. It is extremely difficult to catalogue cases. Most occur in rural areas, well away from hospitals. The disease progresses so rapidly and mortality is so high, with reported rates ranging from 70% to 90%, that very few patients reach treatment facilities.

On the basis of bibliographical studies, accepted knowledge of the etiological factors, documented reports and the expertise of a number of internationally-acknowledged specialists, it has been possible to construct an arithmetic model for estimating the incidence of noma in the various regions concerned.

Contrary to an opinion widely held in the medical world, noma is not an occasional problem confined to a few rare cases.

It is likely that the number of children worldwide who fall prey to noma before the age of 6 years is of the order of several hundred thousand per year.

A retrospective study of referred cases has been launched in a number of countries, permitting calculation of the possible annual incidence. The first results for one West African country, unfortunately, fully confirm the figure of 2 cases per 10 000, the most pessimistic hypothesis put forward for the region.

A disease of early childhood

Although some cases of noma have been reported in adults, they are fairly rare. The disease occurs almost exclusively in children, most of them under six years of age, with a peak incidence between 3 and 4 years. The weaning period is regarded as extremely critical.

The disease occurs in persons weakened by malnutrition, in most cases it follows an infectious or parasitic disease, most commonly measles but also scarlet fever, chickenpox and, occasionally, a malaria attack. The nutritional deficiencies most frequently observed are vitamin and protein deficiences and iron deficiency anaemia.

It is now generally accepted that noma results from a combination of many factors, chief among which are malnutrition and an infectious episode against a background of poor oral hygiene. Acute necrotizing ulcerative gingivitis is regarded as one of the etiological factors of noma, although the mechanisms whereby some cases develop into noma and others do not have not yet been clarified.

From gum ulcers ... to noma

The great majority of cases begin with ulcers of the gums, a periodontal condition that takes a wide variety of forms. If the condition is detected at the gingival stage, it can be prevented from progressing towards noma by simple local disinfection procedures and by administering common antibiotics.

If not treated, it can progress towards noma proper through "transmission to the soft tissues in contact with periodontal lesions".

In this very painful stage, the cheeks or lips begin to swell, oedema appears and the patient's general condition deteriorates. In a few days the swelling become enormous and a blackish furrow marks where loss of substance is occurring. The gangrenous process sets in and, after the scab falls off, leaves a gaping hole in the face.

If the patients do not reach hospital, the mortality rate is horrific, of the order of 80%; most victims die of septicemia.

The survivors suffer the twofold affliction of disfigurement and very frequent functional sequelae. The scar tissue restricts jaw movement, and the loss of substance is not always confined to the soft tissues. The lesion may have progressed into the nearby bone, causing loss of part of the maxilla, mandible or even other facial bones.

The child who survives will never again be able to speak or eat normally.

What can be done?

Noma is a disease of extreme poverty. Does that mean we must wait until the socioeconomic conditions of the countries concerned improve?

Nowadays we know how to prevent, treat, cure, and to some extent, repair the sequelae of noma.

But repair is a lengthy, difficult and painful process and so expensive that very few can afford it.

The means can be found to prevent the suffering, disfigurement and death of a considerable number of children throughout the world.

In November 1992, at a meeting in Paris convened by WHO and Aide Odontologique Internationale, a number of individuals and associations (3) adopted a 5-point plan for controlling noma:

- prevention and early detection
- emergency care service
- etiological and epidemiological research
- treatment of sequelae in other countries
- opening of a regional centre for complex treatment in West Africa.

There is an urgent need for each country concerned to set up a noma control plan, giving priority to early detection and immediate treatment. These countries need to be provided with technical and material support, so that they have the necessary drugs and food supplements for patients; they must be helped to organize the training of health personnel in the villages and primary health care centres. Within the existing social and health structures, there is a need to examine the children at risk and to inform mothers and pregnant women, not to mention the village leaders.

Finally, there is a need to support the individuals and associations who are fighting in the field, organizing transport of patients abroad for operations on the sequelae of the disease, and encouraging and supporting the setting-up of treatment services on the spot.

Nothing can be done without creating greater awareness of the extent of the problem. Energies and resources need to be mobilized far beyond the dental profession itself, which has a key role to play in many areas but cannot cope alone with all aspects of the problem.

On the occasion of World Health Day, WHO makes a solemn appeal to everyone – doctors, public health leaders at all levels, public and private partners, journalists – to support the international programme for noma control in all possible ways.

(1) This article draws extensively on Grappin, G. & Le Coustou, L. Noma. In: Encycl. Med. Chir., Paris, Stomatologie 6, 1978: 22045 L-10.

(2) Dawson, J. Cancrum oris. British Dental Journal, 1945, ***79, No 6,*** *: 151-157.*

(3) This meeting was attended by representatives of Burkina Faso, Côte d'Ivoire, Madagascar, Niger, Togo, Médecins du Monde, Chaîne de l'espoir, Sentinelles, Geneva Cantonal Hospital, and the French Armed Forces Health Service.

CORRIGENDA

Page 1, column 2, line 17:
Delete: used to draw up a definitive list of the countries...
Insert: used to list the countries...

Page 2, column 1, line 30:
Delete: most pessimistic hypothesis...
Insert: most conservative hypothesis...

WHD94.7

WORLD HEALTH DAY
7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

TRAINING OF ORAL HEALTH PERSONNEL THE SILENT REVOLUTION

In 1973, the WHO Global Oral Data Bank (GODB) provided the first evidence that there might be a downward trend in the prevalence of dental caries in industrialized countries which, for decades, had suffered a very high prevalence of the disease. During the intervening 20 years, WHO's Oral Health Programme has urged the dental profession to respond to the changing situation.

- Dental caries levels have fallen in industrialized countries by as much as 90% at twelve years of age.
- In developing countries, the levels reached have not usually been more than half those which occurred in industrialized countries before preventive programmes reversed the trend. Some developing countries have had only minimal or even no increases in the disease.
- The other very common oral diseases of the mouth, periodontal diseases, have responded to better oral hygiene in many communities to the extent that the problem is diminishing and the prospects are bright for further improvements.

The outcome appears to be far fewer personnel in many industrialized countries and very different categories of oral health personnel in countries at all levels of development. These needs for change formed the subject of a WHO Expert Committee meeting entitled 'Educational Imperatives for Oral Health Personnel: Change or Decay?'(TRS 794, 1989). It noted the continuing problem of too many dental schools training traditionally and a proliferation of such schools in developing countries. It focussed on how to achieve a comprehensive reorientation of the dental education process to serve the changing needs of oral health, linked more closely to the requirements of the whole health sector.

The aim is to create an integrated system for educating all health personnel *within a health sciences school structure*, as an alternative to existing schools which are specific to medicine, dentistry, nursing and pharmacy. Elimination of separate training of auxiliary and professional personnel categories is also favoured. A "ladder" system of education is envisaged in which, for the oral health stream, the oral physician, instead of today's dentist, is seen as the highest level category at parity with other physician specialities (*see fig. 1 on page 3*).

Other oral health personnel categories would leave this "ladder" at various levels corresponding to defined lists of duties, as would be the case for personnel focussing on any other health area. A number of dental schools, predominantly but not exclusively in Europe, have already begun to move towards this type of structure.

THE OBJECTIVE

What we need is a global initiative for which the principal objective is a continually updated educational tool, which enhances efficiency in transferring knowledge and can be achieved at the same time as reducing costs of education.

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THE CHALLENGE

First there is the problem of those developing countries experiencing either an actual increase in caries prevalence, or an inability to reduce the existing level. Although the disease prevalence is, or threatens to be, only moderate, its impact is much more serious than would be the case in industrialized countries because of the almost total lack of effective care. These countries have responded to the problem by attempting to develop new dental schools with curricula adapted, or more realistically adopted, from those which were common, but are now changing in industrialized countries. More serious still is the fact that, irrespective of which curricula these countries may have chosen, there is a crippling lack of qualified teaching staff. Realistically speaking, this shortfall results in failure to deliver, often by a wide margin, whatever curricula are offered in faculty handbooks.

Nor is this predicament limited to developing countries. There is a wide divergence of dental school performance across the range of industrialized countries and within any country in which there are a number of dental schools. Even where schools may be judged similar in quality, there are many differences in strength and creativeness from one subject area to another. We are thus facing a challenge to minimize undesirable variation, and to provide up-to-date and high quality education for all.

THE CONCEPT

Succinctly, empowerment of the learner is the principal aim of this concept, which is both a variation on the theme of universities without walls, and an attempt to make excellence available whatever the constraints of quantity and/or quality in teaching staff. It will keep in mind dental schools, where resources needed to deliver an adequate and appropriate curriculum are very scarce. Every school will need a certain core of staff to administer, coordinate, guide, evaluate and conduct practical exercises. The specific teaching and learning, however, would come largely from the student, the graduate and the teachers interacting with the computer programmes at their disposal. The excellence of those programmes would depend on having a "brains trust" group of the very best experts responsible for devising the programmes, thereby offering the best available courses to all students everywhere, rather than the vast ranges of messages, often contradictory and/or outdated, which students currently receive.

Preparation of a broad set of modules, serving the oral health stream within a health sciences structure, will demonstrate what might be achieved and thus initiate a snowballing effect towards the ultimate objective of a complete computer-assisted curriculum.

It is our belief that a different matrix, using a problem-based approach, is now required into which traditional subjects will fit as the need is perceived. Let us take as an example a preliminary matrix for the oral physician as the successor to today's dentist (Fig. 2). It is important to consider the contents as providing main subdivisions vertically and listing, within those columns, a number of subject areas from which specific modules would be developed. The number of modules might be large or small. For example, in column (1) it is easy to conceive that a large number of modules would be required in relation to different types of maxillo-facial injuries only. In this same column, there might be very few, though important, modules dealing with nutrition related to refined carbohydrates, trace element ingestion and habits. Similar examples could be given for each column. Figure 2 does not attempt to be comprehensive, the final details being defined by the "brains trust".

A different way of approaching the subject is to work from a core module for a subject area to a cluster of related and inter-related subjects. Each cluster might contain one, several, or many modules in the form of instructional videos, interactive compact videos or interactive discs. This approach could produce a complete electronic curriculum which could stand alone or could supplement existing curricula, either traditional or using the problem-solving approach. It would create the linkages which a student, practitioner, or teacher needs to follow both for each subject area and between subject areas. It is capable of unlimited extension. Though this process has relevance to the whole health sector, we believe that the need is better recognized and felt in the oral health subsector. Already there are several centres of excellence around the globe producing the type of interactive materials needed for computer-assisted training. There is need to harness that excellence towards the overall objective. This is what WHO hopes to do, in collaboration with the International Federation of Dental Education Associations, which is enthusiastic about this approach.

NEW CAPABILITIES

An answer lies in broad exploitation of new communication skills, which are so versatile in keeping information to hand and in offering opportunities for interactive use by undergraduates and graduate, s as well as teaching staff. An obvious outcome will be the development of a new type of student as well as new types of teachers.

Major elements of this new experience will be:

- much greater ease in pooling intellectual resources;
- speedy exchange of information, especially in relation to effective new methodologies and materials;
- development of common assessment methods;
- access to a wide variety of data banks, and
- the greater opportunity to remodel careers over extended periods of time according to the speed of change in society and the work market.

• • •

Whatever the definitive choice of approaches, we believe that an initiative of this type will streamline the training of health personnel. It is hoped that there will be sufficient flexibility in this approach to ensure that training of health personnel will be kept much closer to the leading edge of science than is the case today.

This initiative will be complex, but we believe it will be magnificently worthwhile.

Figure 1

Schematic representation of the health sciences concept

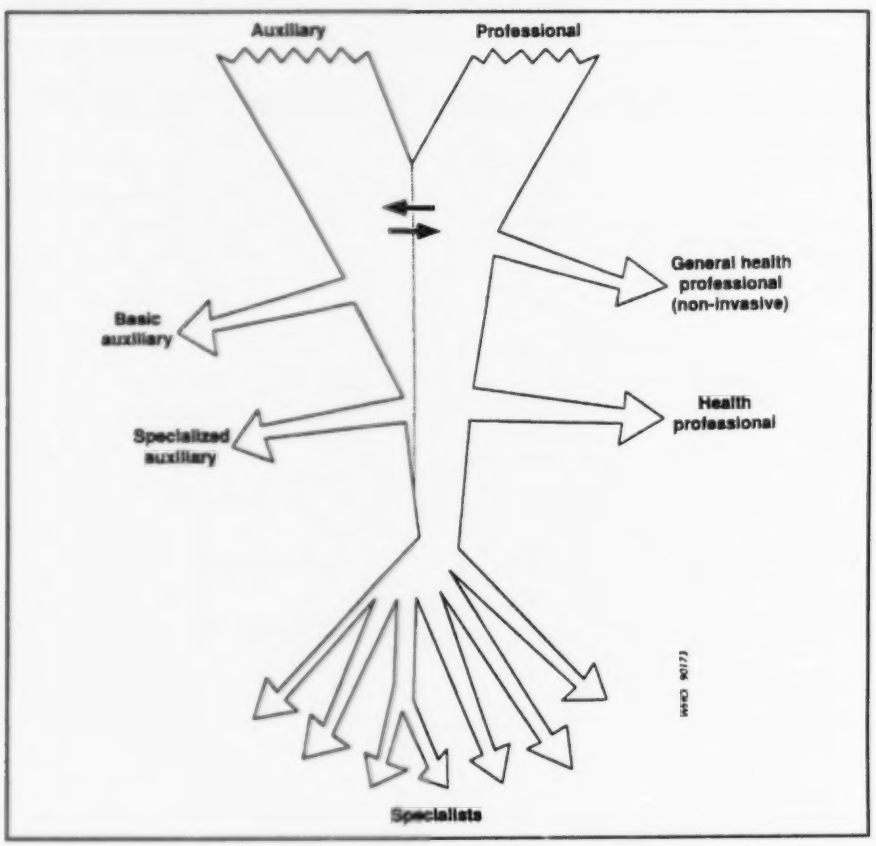


Figure 2

ORAL PHYSICIAN

Lifestyle Guidance[1]	Treatment Skills[2]	Reporting Skills[3]	Management Skills[4]	Multi-disciplinary Links[5]	Diagnostic Skills[6]	Other[7]
Accidents	Orthodontics	Informatics	Practice	Legislation	Radiology	Research
		General				
Hygiene	Prostho-dontics	Surveys	Preventive Methodologies	Education	Pathology	Equipment
Nutrition	Surgery	Clinical Records	Infection Control	Agriculture	Computer Aids	Material
Sexual Practices	Medicine	Analysis	Cost-Effectiveness	Transport	Biochemistry	
Recreation	Restorative Dentistry	Monitoring	Teaching	Environment	Microbiology	
Physical Activity	Periodontal Care	Evaluation	Other	Recreation	Other	
Emotional Aspects	Preventive Applications	Other		Other Health		
Oral Habits	Other			Other		
Other						

WORLD HEALTH DAY

7 April 1994

ORAL HEALTH FOR A HEALTHY LIFE

FACTS AND FIGURES

WORLD HEALTH DAY: 7 APRIL 1994

Success in vastly improving oral health for whole populations has been the outcome of the dental profession's activities in highly industrialized countries and in several countries where the economy is either in transition or developing. That success has been achieved by a large range of preventive programmes based on improved oral hygiene, optimal use of fluorides and prudent use of sugars, complemented by curative, restorative and rehabilitative services.

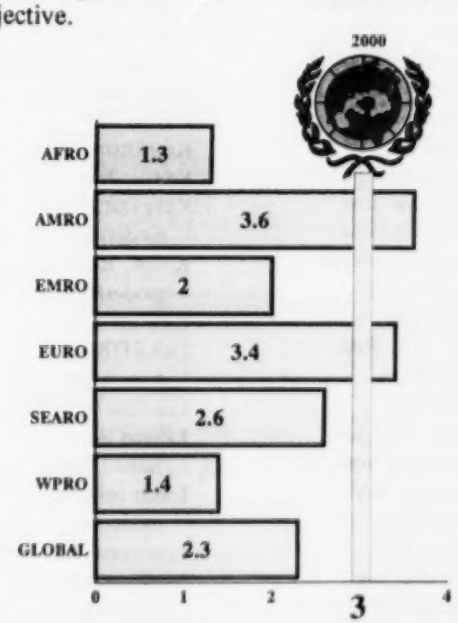
GLOBAL GOALS FOR THE YEAR 2000

In 1979 the World Health Assembly adopted a resolution calling for the attainment of 'Health for All' by the year 2000. With this in mind, the WHO Oral Health Unit, in conjunction with the Fédération Dentaire Internationale (FDI), recommended the establishment of specific oral health goals. On the way to the ultimate aim of complete oral health for all, with optimal function of teeth, jaws and associated structures, these goals propose attainable levels that represent appreciable strides towards the final target. The six goals are:

Age	*Goal*
05-06	*50% caries free*
12	*DMFT $\leq$ 3*
18	*85% retain all their teeth*
35-44	*50% reduction in number of persons with no teeth (75% with 20 teeth)*
65 +	*25% reduction in number of persons with no teeth (50% with 20 teeth).*

A new set of global goals for the year 2010 are being developed. They will be of two types:
a) Further improved health status.
b) Promotion of conditions which enable communities to apply, fully, preventive capabilities.

The WHO World Health Assembly, May 1981, recognized as the first global indicator of oral health status, an average of not more than 3 **D**ecayed, **M**issing, **F**illed permanent **T**eeth at the age of 12 by the year 2000. The diagram below shows the weighted mean **DMFT** for each WHO region in 1993 in relation to that objective.



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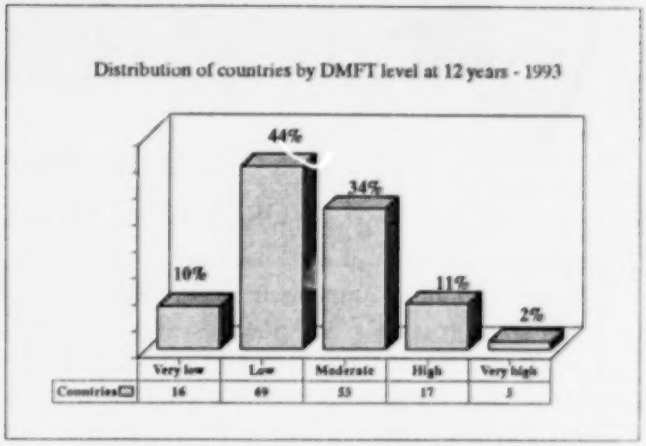
D M F T levels at age 12 by country - 1993 -

Very low	0.0 - 1.1
Low	1.2 - 2.6
Moderate	2.7 - 4.4
High	4.5 - 6.5
Very high	6.6>

Afghanistan: moderate
Albania: moderate
Algeria: moderate
Angola: low
Argentina: moderate
Armenia: low
Australia: low
Austria: moderate
Bahamas: low
Bahrain: low
Bangladesh: moderate
Barbados: moderate
Belarus: moderate
Belgium: moderate
Belize: moderate
Benin: very low
Bolivia: low
Botswana: very low
Brazil: high
Brunei Darussalam: high
Bulgaria: moderate
Burkina Faso: very low
Burundi: very low
Bhutan: low
Cambodia: low
Cameroon: low
Canada: moderate
Cape Verde: moderate
Cent. Afr. Rep.: moderate
Chile: high
China: very low
Colombia: high
Cook Is.: high
Costa Rica: very high
Côte d'Ivoire: moderate
Cuba: moderate
Cyprus: low
Czech Rep.: moderate
Denmark: low
Djibouti: very low
Dominica: low
Ecuador: high
Egypt: low
El Salvador: high
Estonia: moderate
Ethiopia: very low
Fiji: moderate
Finland: low
France: moderate
French Polynesia: moderate
Gambia: low
Ghana: low
Georgia: low
Germany: high
Gibraltar: low
Greece: moderate
Grenada: moderate
Guatemala: low
Guyana: moderate
Haiti: moderate
Honduras: high
Hong Kong: low
Hungary: moderate
Iceland: moderate
India: moderate
Indonesia: low
Iran: moderate
Iraq: moderate
Ireland: low
Israel: high
Italy: moderate
Jamaica: very high
Japan: moderate
Jordan: low
Kazakhstan: low
Kenya: low
Kyrgyzstan: moderate
Korea, Rep.: moderate
Kuwait: low
Lao PDR: low
Latvia: high
Lesotho: very low
Libyan Arab Jama.: low
Liechtenstein: moderate
Lithuania: moderate
Madagascar: moderate
Malawi: very low



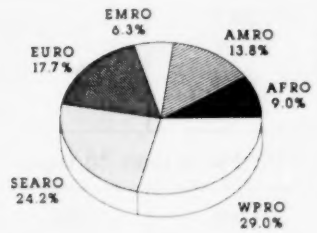
Malaysia: moderate
Maldives: low
Mali: low
Malta: low
Mauritania: low
Mauritius: moderate
Mexico: moderate
Micronesia: low
Moldova: low
Morocco: low
Mozambique: moderate
Myanmar: very low
Namibia: low
Nepal: low
Netherlands: low
St. Kitts & Nevis: high
New Caledonia: moderate
New Zealand: low
Niger: low
Nigeria: very low
Norway: low
Oman: low
Pakistan: low
Papua New Guinea: low
Paraguay: moderate
Peru: high
Philippines: high
Poland: high
Portugal: moderate
Rwanda: low
Romania: moderate
Russia: moderate
Western Samoa: low
San Marino: moderate
Saudi Arabia: low
Senegal: low
Sierra Leone: low
Singapore: low
Slovakia: moderate
Somalia: low
South Africa: low
Spain: moderate
St. Vincent & the Grenadines: moderate
Sudan: low
Sweden: low
Switzerland: low
Syria: low
Tajikistan: low
Tanzania: very low
Thailand: low
Togo: very low
Tonga: very low
Tunisia: low
Turkey: moderate
Turkmenistan: low
Uganda: low
UK: low
Ukraine: moderate
UAE: low
Uruguay: very high
USA: low
Uzbekistan: moderate
Vanuatu: low
Venezuela: moderate
Viet Nam: low
Yemen: moderate
Yugoslavia: high
Zaire: very low

GLOBAL ORAL DATA BANK

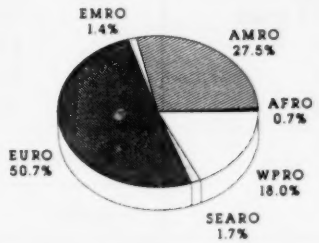
For any action aimed at improving oral health it is necessary to have a basic set of reference statistics on oral health status. In the early 1970s the WHO Global Oral Data Bank was set up to meet this need for information on oral disease status at both national and global levels. Caries levels at the key age of 12 years are extracted from the Bank and reported annually in the booklet ***Dental Caries Levels at 12 Years***.

Distribution of Population/Oral Health Personnel by WHO Regions: 1986

Population

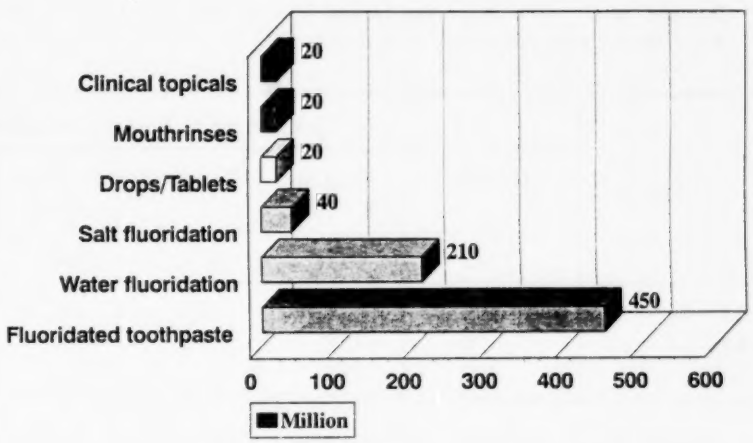


Oral Health Personnel



Fluoride-bearing toothpaste is the most widely available vehicle for fluoride. It has played a major role in prevention of dental caries by the mainly topical route. Community water fluoridation is one of the most successful public health disease prevention programmes ever initiated. It has the potential to benefit all age groups and all socioeconomic strata. This potential is especially important from the lowest stratum which has the highest caries prevalence and is least able to afford preventive and restorative services. Other community programmes of salt and milk fluoridation are alternatives. All are highly cost-effective methods which provide substantial protection against caries, even where other sources of topical fluoride are in widespread use.

Tentative estimate of number of people throughout the world using various types of fluoride therapy



(data extracted from "Fluorides in caries prevention" (1992) by J.J.Murray, A.J.Rugg-Gunn and G.N.Jenkins)

A patient has a cavity that needs restoration: how much does it cost to get it filled?

In the UK the cost of a one surface filling for an adult patient would be about US$8 of which the patient pays 75% if treated by a dentist working within the National Health Service.

In Sudan, the patient would have to pay about US$1-2, in Brazil up to US$25 could be charged, and in Poland about US$3.

Here is another way to illustrate the cost of treatment. In a provincial hospital in a district in Zimbabwe, 48 km from the capital Harare, a simple filling would cost US$2.5. For the same amount of money, 1-2 kg of meat could be bought, or two tubes of toothpaste, or 7kg of brown sugar.

HSPR-03, World Bank, 1990

TOOTH LOSS

On the basis of maintaining a natural dentition throughout life, loss of all teeth (edentulous) is the ultimate failure, closely followed by percentages which have only 20 or less teeth remaining.

1. Where dental caries prevalence ***WAS*** high:

Age	Percentage of Population Edentulous in England & Wales				
	1968		1978	1988	
All ages > 15 years	37%		29%	20%	
45 - 54 years	41%		29%	15%	
55 - 64 years	64%		48%	36%	
65 - 74 years	79%		74%	56%	
	Percentage of Population with More than 20 teeth remaining				
	1978	1988	1998	2008	2018
45 - 54 years	34%	60%	78%*	88%*	91%*

** estimated*

Downer, M.C., 'The Improving Dental Health of United Kingdom Adults and Prospects for the Future', Brit.Dent.J., Feb. 1991, Vol. 170, p.154-158

Age	Percentage of Population Edentulous in:						
	Ireland	England & Wales	Scotland	Nether-lands	Finland	Sweden	USA
	1992	1991	1991	1991	1991	1989	1987
35 - 44 years	4%	3%	7%	9%	-	2%	3%
45 - 54 years	18%	15%	33%	35%	-	13%	9%
All	15%	21%	27%	-	30%	16%	4%

O'Mullane et al. 'Health Services and Women's Oral Health'. J. Dent. Educ. Vol. 57, No. 10, 1993

The contrasting data, as the effects of caries were greatest and then progressively reduced, give us much food for thought in comparison with situations where the potential for higher levels of caries exists.

2. Where dental caries levels ***HAVE NOT YET INCREASED*** significantly:

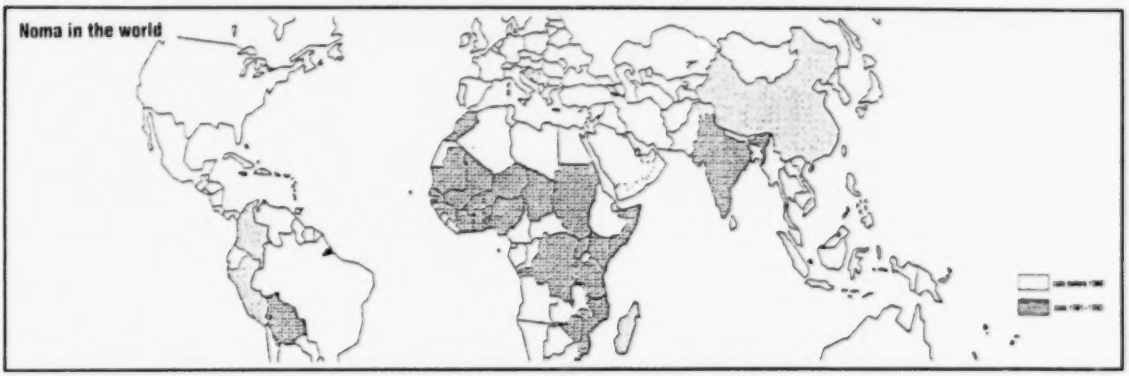
Percentage of Population Edentulous: 35 - 44 Years								
Burkina Faso	1986	< 1	Sierra Leone	1989	< 1	Bangladesh	1990	< 1
Central African Republic	1986	< 1	Tanzania, U.Rep.	1989	< 1	Indonesia	1986	< 1
Kenya	1984	< 1	Togo	1986	< 1	Nepal	1987	< 1
Namibia	1991	< 1	Zaire	1987	< 1	Sri Lanka	1984	1
Niger	1988	< 1	Zimbabwe	1986	< 1	Thailand	1986	< 1
			Pakistan	1991	4	China	1987	< 1

Data from WHO Global Oral Data Bank 1993

NOMA

Why do hundreds of thousands of children die each year and why do thousands more remain disfigured for life?

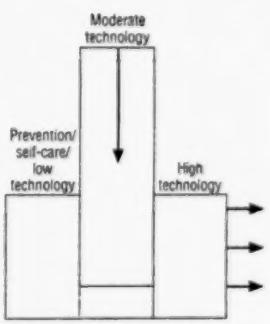
Their suffering is caused by **NOMA**, an illness which destroys whole areas of the face, attacking the very young, particularly those made vulnerable by malnutrition. It begins as a gum ulcer which, in a matter of days, spreads to involve the cheek, chin, palate, nose and virtually any part of the oral cavity and surrounding structures, often leaving a gaping hole in the face, sparing neither the bones of the eye socket nor the jaw. When the disease reaches this stage, death, usually from septicaemia, follows in 90% of the cases. Those who survive have facial mutilation, speech defects and chewing difficulties. The countries where noma is still prevalent are those where malnutrition and extreme poverty are rife.



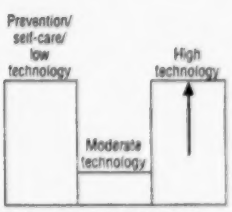
Today we know how to prevent, treat and cure this illness and, to a certain extent, repair the after-effects, although this is time-consuming, difficult and costly. Not until the socioeconomic conditions improve in those countries where noma is found, will the children be protected from illness. WHO is launching a worldwide campaign to encourage prevention, early detection and research aimed at combatting this tragic affliction.

CHANGING PATTERNS IN ORAL HEALTH CARE

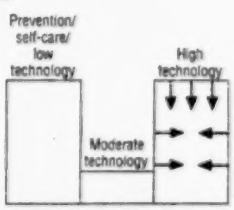
The proportion of the population taking advantage of oral health care services varies from country to country but in only a few might it be considered optimum. Total coverage is an unrealistic goal, but steps should be taken to ensure that all those who need oral health care can receive it. It is envisaged that, in industrialized countries, future oral health personnel will need to have a broad education in allied health sciences of which oral health will be a fully integrated part. In those developing countries where caries is increasing, and in those where the prevalence is still low, a strategy of primary health care should be adopted concentrating on low-technology procedures for the majority of oral health services. However, eventually, similar structural patterns are likely to prevail in both developing and highly industrialized countries as indicated in the diagrams opposite.



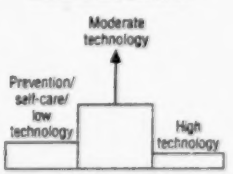
a. Changes in distribution of tasks in oral health care from past to present in **highly industrialized** countries



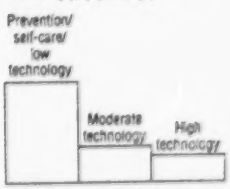
b. Distribution of tasks in oral health care in **highly industrialized** countries



c. Future distribution of tasks in oral health care in **highly industrialized** countries



d. Typical distribution of tasks in oral health care in **developing** countries prior to similar effects as for (a), (b) and (c)



e. Eventual future distribution of tasks in oral health care in **all** countries

WHO ADDRESSES

AFRICA
WHO, Regional Office for Africa
P.O. Box 6, Brazzaville, Congo
Tel. : 83 38 60-64
Telex : UNISANTE BRAZZAVILLE 5217/5364
Fax : 83 18 79

AMERICAS
WHO, Regional Office for the Americas
Pan American Sanitary Bureau
525, 23rd Street N.W. Washington, D.C. 20037
United States of America
Tel. : 202.861.3200
Telex : OFSANPAN WASHINGTON 248338
Fax : 202.223.5971

EASTERN MEDITERRANEAN
WHO, Regional Office for the Eastern Mediterranean
P.O. Box 1517, Alexandria 21511, Egypt
Tel. : 48.202.23, 48.202.24, 48.300.90, 48.300.96, 48.300.97
Telex : UNISANTE ALEXANDRIA 54028
Fax : 48 38 916

EUROPE
WHO, Regional Office for Europe
8, Scherfigsvej, DK-2100 Copenhagen Ø, Denmark
Tel. : 39.17.17.17
Telex : UNISANTE COPENHAGEN 15348
Fax : 31 17 18 18

SOUTH-EAST ASIA
WHO, Regional Office for South-East Asia
World Health House, Indraprastha Estate
Mahatma Gandhi Road, New Delhi 110002, India
Tel. : 11.331.7804, 11.331.7823
Telex : WHO NEW DELHI 3165095/3165031
Fax : 11.331.8607, 11.332.7972

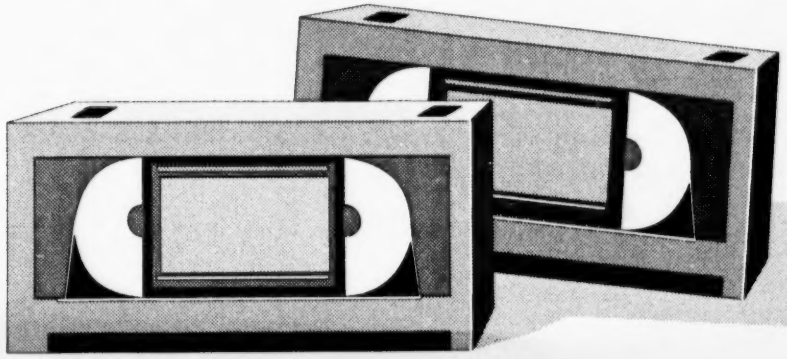
WESTERN PACIFIC
WHO, Regional Office for the Western Pacific
P.O. Box 2932, 1099 Manila, Philippines
Tel. : 521.84.21
Telex : UNISANTE MANILA 27652
Fax : 52.11.036

WHO OFFICE AT THE UNITED NATIONS
2, United Nations Plaza, DC-2 Building
Rooms 0956 to 0976, New York, N.Y. 10017
United States of America
Tel. : 212.963.4388
Telex : UNISANTE NEW YORK 234292
Fax : 212.223.2920

Illustration DPS/LYT

This new video provides an overall description of oral health all around the world. It describes one of the most successful preventive programmes in this century: a three-fold approach to better oral health by emphasizing improved oral hygiene, the use of fluorides and prudence in diet. WHO has been developing alternative ways of extending oral care to communities. The new video provides information about simple, inexpensive, good quality care that is based on cleaning the hole in the tooth by using hand instruments. As the drill is not needed, this Atraumatic Restorative Treatment (ART) technique can be used in areas where electricity is not available. It also provides information about the interrelations between general and oral diseases, especially about oral manifestations of HIV.

A new video on noma or cancrum oris describes the history and today's situation of this neglected disease connected with malnutrition and extreme poverty, prevalent among young children in many developing countries. It is especially designed to create greater awareness of the extent of the problem of noma. It explores this issue in Africa – in Niger, where alarming reports have been received, and describes the action of various nongovernmental organizations as well as the WHO strategy in building an international action network against noma.



For more information please contact World Health Organization:

Distribution and Sales
or Oral Health Unit
1211 GENEVA 27
SWITZERLAND